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EXAMINER	
BERMAN, JACK I	

ART UNIT	PAPER NUMBER
2881	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)
	09/891,612	NAKASUJI ET AL.
	Examiner	Art Unit
	Jack I. Berman	2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 04 November 2004.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 52-78,80-82,85-93 and 95 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 80,82,85 and 95 is/are allowed.

6)☒ Claim(s) 52-78,81 and 86-93 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 23 October 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 90-93 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant has amended Claim 90 to claim that the controller previously claimed as controlling a retarding voltage on the basis of a unit for measuring the charge-up state of the object under test in order to determine an optimal retarding voltage now controls the beam current on the basis of that same unit to determine an optimal beam current. No such apparatus is disclosed in the original disclosure. While line 21 on page 159 of the substitute specification filed on January 5, 2004 mentions the possibility of values of optimal beam currents being found, there is no explanation of how this could be done since the unit for measuring the charge-up state disclosed in this embodiment of the invention (the eleventh embodiment and the only embodiment that discloses a unit for measuring charge-up) operates by changing the retarding voltage and monitoring the quality of the resultant images (which is inherently the measure of the performance of the performance of the apparatus, contrary to the implications of the remarks accompanying the amendment filed on October 12, 2004). How can the disclosed unit for measuring the charge-up state function if the primary beam current was not fixed? Any change in the beam current would add an extra variable into the system that the disclosed system does not take into account.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 81 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This claim depends from Claim 79, which has been canceled.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 52-54, 60, and 68-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. in view of Lo et al., Tabrizi et al., and Davis et al. Yamazaki et al. discloses a sheet beam based testing apparatus characterized by comprising: a testing chamber for an object under testing (not labeled but inherently required because the electron optics used by Yamazaki et al. will only focus electrons into a beam inside a vacuum); a sheet beam generator (1, 2, 3) for emitting charged particles or ions or electromagnetic waves having energy for

expelling secondary charge particles from said object (11) under testing held in said testing chamber as a sheet-shaped primary irradiation beam (31a, 31b) having a predetermined width (see lines 54-59 in column 4); an electron-optical system for introducing (4, 5, 6, 27, 14) said beam (31a, 31b) to said object under testing, and capturing (14, 27, 16, 18, 20) secondary charged particle flux (32a, 32b) generated from said object (11) under testing and introducing said secondary charged particle flux to an image processing system (22, 23, 24, 25); the image processing system (22, 23, 24, 25) for projecting said secondary charge particle flux (32a, 32b) to form a visible image; an information processing system (28, 29) for displaying and/or storing state information of said object under testing based on an output of said image processing system; and a stage (12) for holding said object under testing for relative movement with respect to said electron-optical system. The Yamazaki et al. apparatus includes electrostatic lenses (14, 16, 18, 20), an EXB separator or a Wien filter (27) for separating a secondary charged particle beam emitted from said object under testing from the primary irradiating beam, wherein the amount of deflection of said secondary charged particle beam by a magnetic field of said EXB separator or said Wien filter is twice the amount of deflection by an electric field of the same, and a deflecting direction by said magnetic field is opposite to a deflecting direction by said electric field, and beam deflecting means (4) for forming a primary irradiating beam or deflecting the primary irradiating beam to sequentially irradiate regions under testing on said object under testing with the primary irradiating beam. Yamazaki et al. teaches to use the apparatus disclosed to inspect wafers or semiconductors for defects, which includes defective circuit wires, measurement of line widths, measurement of alignment precision, and measurement of potential contrast. Yamazaki et al. does not teach to use the apparatus disclosed

to expose a wafer, but since the apparatus inherently constitutes a type of scanning electron microscope and electron beam lithography devices were originally developed from scanning electron microscopes, it would have been obvious to a person having ordinary skill in the art to use the Yamazaki et al. apparatus to delineate a circuit pattern of a semiconductor device on a wafer or a reticle. Yamazaki et al. does not teach how the object under test is moved in or out of the (inherently required) testing chamber, how the testing chamber is held at vacuum, to isolate the object under test from vibrations, to precharge the object under test, how the object under test is held, or how the positioning of the object under test is determined. Lo et al. discloses scanning electron beam inspection apparatus similar to Yamazaki et al.'s and teaches at lines 53-60 in column 7 that transport mechanisms for securing an object under testing for transportation into and out of a testing chamber are conventional. It would have been obvious to a person having ordinary skill in the art to provide the Yamazaki et al. apparatus with the conventional transport mechanism cited by Lo et al. At lines 48-53 in column 7, Lo et al. teaches to provide a vibration isolator (50) for preventing vibrations of the object under testing; and a vacuum device (48) for holding the inside of the testing chamber at a vacuum. It would have been obvious to a person having ordinary skill in the art to provide these devices in the Yamazaki et al. apparatus because vibrations would be as detrimental to image resolution in the Yamazaki et al. apparatus as they would be in the Lo et al. apparatus and some means would have to be provided to maintain the vacuum required by both patented apparatuses. At lines 37-55 in column 6, Lo et al. discloses a precharge unit and, beginning at line 48 in column 9, explains in detail how precharging removes variations of charge accumulated on an object under test. It would have been obvious to a person having ordinary skill in the art to apply this teaching of Lo et al.'s to the Yamazaki et al.

apparatus in order to prevent the problems discussed by Lo et al. At lines 33-34 in column 7, Lo et al. teaches to use an electrostatic chuck (24) that electrostatically sucks and holds an object to support an object under test (22) and at lines 4-20 in column 7 Lo et al. teaches to use such a chuck to apply a voltage to the object (22) from a bias source (28) and to increase or decrease this voltage from zero to a predetermined value. Since Yamazaki et al. teaches at 30-35 in column 5 that a predetermined voltage must be applied to the object under test, it would have been obvious to a person having ordinary skill in the art to use the electrostatic chuck cited by Lo et al. to both hold the object and apply the required predetermined voltage. Yamazaki et al. also teaches at lines 31-32 in column 7 that the movement of the stage on which the object under test is held must be controlled by a controller. Since Lo et al. teaches at lines 38-44 in column 7 and lines 38-40 in column 8 that such a controller may comprise a laser interference type distance measuring unit (laser interferometer) for providing feedback to determine the coordinates of the stage, it would have been obvious to a person having ordinary skill in the art to provide such an alignment controller including a laser interferometer as the controller required by Yamazaki et al. At lines 3-17 in column 6, Yamazaki et al. discloses an image processing system having image capturing means that includes a fluorescent screen and a micro-channel plate and a solid-state imager device (CCD) camera to detect secondary charged particles for capturing each of images of a plurality of regions under testing on said object under testing, which images are then sent to an "image data host computer 29 [that] displays an image on a display 30, saves and processes image data, and so forth." Clearly Yamazaki et al. uses a conventional image processor. Lo et al. teaches, at line 63 in column 7 through line 11 in column 8, that such a conventional image processor includes a "die- to-reference" algorithm that, by definition, inherently requires means

for storing a reference image and an information processing system for comparing said images of the regions under testing with the reference image to determine a state of said object under testing. It would have been obvious to a person having ordinary skill in the art to use the conventional image processor described by Lo et al. as the nominally recited "image data host computer". It is noted that the limitation in claim 69 that the plurality of images of the regions under testing captured by said image processing means are captured as they are displaced from one another while partially overlapping on said object under testing is a limitation on the method of using the claimed sheet beam testing apparatus, not on the apparatus itself, and therefore can not patentably distinguish the claimed apparatus. While Lo et al. teaches a person having ordinary skill in the art to provide the Yamazaki et al. apparatus with a conventional transport mechanism, including a loading chamber (loadlock subsystem 52), and to provide a vibration isolator (50) for preventing vibrations of the object under testing, neither Yamazaki et al. nor Lo et al. discuss the problem of dust adhering to a wafer as the loading chamber is evacuated. At lines 39-46 in column 3 and 59-65 in column 9, Tabrizi et al. teaches to provide a mini-environment chamber (604) located on the atmospheric side of the load locks, which inherently means that the pressure of the mini-environment chamber is equal to atmospheric pressure, for supplying a clean gas to an object to be introduced into a working chamber to prevent dust from contacting the object. It would have been obvious to a person having ordinary skill in the art to apply Tabrizi et al.'s solution to this problem, which would inherently occur in the Yamazaki et al./Lo et al. apparatus discussed above, by using Tabrizi et al.'s mini-environment chamber for supplying a clean gas to said object under testing to prevent dust from attaching to said object under testing before it is loaded into Lo et al.'s wafer loadlock subsystem (52). While applicant

is correct in arguing that Davis et al.'s load lock chamber (12) is not equivalent to the mini-environment chamber between the ambient environment and a loading chamber, Davis et al. does discuss the problem of contaminants that may be introduced into a vacuum chamber and teaches, at lines 10-24 in column 24, to provide a particulate sensor to monitor the cleanliness of a loading chamber and further teaches from line 61 in column 27 through line 36 in column 28 to prevent the transfer of specimens into the testing chamber if the number of particulates detected is too high. It would have been obvious to a person having ordinary skill in the art to incorporate such a sensor in the Tabrizi et al. mini-environment chamber discussed above and shut down the inspection apparatus when the cleanliness of the mini-environment chamber is below a predetermined level since these references both recognize the problems caused by contamination and seek to avoid these problems.

Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., Lo et al., Tabrizi et al., and Davis et al. as applied to claims 52-54, 60, and 68-78 above, and further in view of Bachman. The Yamazaki et al. apparatus has several electrostatic lenses, but these lenses are not described in detail. Bachman, on the other hand, discloses an electrostatic lens including a plurality of electrodes (18, 19) having potential differences, and an insulating material (10) positioned between said electrodes for holding said electrodes, at least one electrode (19) having a first electrode surface having a minimum inter-electrode distance, a second electrode surface having an inter-electrode distance longer than said first electrode surface, and a step between both said electrodes (18, 19); said insulating material (10) being positioned between said second electrode surface and another electrode (18) for substantially vertically supporting each electrode; and a minimum creeping distance of said insulating material

between said electrodes is substantially equal to an inter-electrode distance in said supported electrode portion. It would have been obvious to a person having ordinary skill in the art to use the electrostatic lens disclosed by Bachman as at least one of the unspecified electrostatic lenses required by Yamazaki et al.

Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., Lo et al., Tabrizi et al., Davis et al., and Bachman as applied to claim 55 above, and further in view of Abe et al. The Bachman apparatus has several electrodes, but the materials of these electrodes are not described in detail. Abe et al., on the other hand, discloses electrodes formed as metal films for use in an electron optical column and teaches, at lines 26-32 in column 4 that the use of platinum as the material of such metal coatings is advantageous because platinum does not react with a plasma used to clean the electron optical column so a problem with charge-up (accumulation of charge on non-conductive deposits on an electrode) does not occur. It would therefore have been obvious to a person having ordinary skill in the art to use coatings of platinum to form the required electrodes in the Yamazaki et al./Lo et al./Tabrizi et al./Davis et al./Bachman apparatus in order to avoid charge-up problems in the manner taught by Abe et al.

Claims 57-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., Lo et al. Tabrizi et al., and Davis et al. as applied to claims 52-54, 60, and 68-78 above, and further in view of Watanabe et al. Watanabe et al. teaches that scanning electron microscopes face a problem caused by vibrations because such vibrations cause the image formed to vibrate. Watanabe et al. teaches to solve this problem by providing a scanning electron microscope with a mechanical construction for determining a position of said object under testing at which a primary irradiating beam (2) is emitted, a piezoelectric element (9) for

receiving a force from vibrations of said mechanical construction; and a vibration attenuating circuit (17) electrically connected to said piezoelectric element for acting to attenuate output electric energy. According to Watanabe et al., the vibration attenuating circuit drives the piezoelectric element at a resonant frequency of the mechanical construction. By definition, any circuit capable of driving a piezoelectric element at a resonant frequency must be tuned, which inherently requires that an inductive means must be determined with respect to the static capacitance of that element, and since Watanabe et al. does not provide any superconductors, the circuit must also have some resistive elements. It would have been obvious to a person having ordinary skill in the art to provide the Yamazaki et al./Lo et al./Tabrizi et al./Davis et al. apparatus discussed above with Watanabe et al.'s vibration attenuating means in order to avoid the vibration problems discussed by Watanabe et al.

Claims 61, 62, and 65-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., Lo et al., Tabrizi et al., and Davis et al. as applied to claims 52-54, 60, and 68-78 above, and further in view of Petric. As is discussed above, Yamazaki et al. does not give any details about the stage positioning equipment and evacuation devices required for the disclosed sheet beam testing apparatus. Petric discloses a stage (30) for holding an object to be irradiated with a focused electron beam with a degree of freedom at least equal to or more than two with respect to the electron-optical system, said stage (30) comprising a non-contact supporting mechanism by means of hydrostatic bearings (see lines 10-15 in column 8), and a vacuum sealing mechanism (20) through differential pumping, and a partition (20) containing a differential pumping structure is disposed between a location of said object which is irradiated with the beam and a hydrostatic bearing support of said stage for reducing a conductance to

produce a pressure difference. At lines 56-59 in column 7, Petric teaches that the surface (9) of parts facing the hydrostatic bearing should be ground to form a flat surface, this grinding inherently constituting a surface treatment that reduces released gases because it removes pits in which gases might be trapped. It would have been obvious to a person having ordinary skill in the art to use the Petric apparatus as the stage positioning equipment and evacuation devices required for the Yamazaki et al./Lo et al./Tabrizi et al./Davis et al. sheet beam testing apparatus since the Petric apparatus is designed to permit the irradiation of objects with a focused electron beam of the type used by Yamazaki et al., Lo et al., and Davis et al. While Petric uses air as the gas supplied to the hydrostatic bearings, the use of dry nitrogen or inert gas would have been an obvious substitution of equivalent materials to exert a hydrostatic gas pressure. It would also have been obvious to a person having ordinary skill in the art to exhaust the gas supplied to the hydrostatic bearing from a housing for containing said stage, and thereafter pressurizing the gas and again supplying it to said hydrostatic bearings in order to avoid wasting the gas.

Claim 63 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., Lo et al., Tabrizi et al., Davis et al. and Petric as applied to claims 61, 62, and 65-67 above, and further in view of Lamattina et al. At lines 8-9 in column 4, Lamattina et al. teaches that it is known in the art to use a cold trap to back up a roughing pump and a high vacuum pump. It would therefore have been obvious to a person having ordinary skill in the art to use such a cold trap in the differential pumping structure that forms a partition in both the Lamattina et al. apparatus (as envelope apparatus 29 and 39) and the Petric apparatus (as envelope 20 and 87) when using this structure to permit the irradiation of the object under test in the Yamazaki et al./Lo et al./Tabrizi et al./Davis et al./Petric apparatus discussed above.

Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., Lo et al., Tabrizi et al., Davis et al. and Petric as applied to claims 61, 62, and 65-67 above, and further in view of Bisschops et al. As can be best seen in Figure 4, Bisschops et al. teaches that when a hydrostatic bearing (21) is used to support a stage (14) that supports a wafer (W) inside the vacuum chamber (V) of a lithography system (2), it is advantageous to provide a partition (sliding seal plate 12) near the hydrostatic bearing to minimize loss of vacuum. Since the Petric apparatus uses a hydrostatic bearing as well as a partition near the electron beam generator, it would have been obvious to a person having ordinary skill in the art to apply the teachings of Bisschops et al. by providing an additional partition near the hydrostatic bearing if the Petric apparatus is used as the stage in the Yamazaki et al. sheet beam based testing apparatus in order to maintain the lowest pressure possible at the surface of the wafer under test.

Claims 86-89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., Lo et al., Tabrizi et al., and Davis et al. as applied to claims 52-54, 60, 68-78, and 86 above, and further in view of Livesay. As is discussed above, it would have been obvious to a person having ordinary skill in the art to use the electrostatic chuck cited by Lo et al. to both hold the object and apply the required predetermined voltage in the Yamazaki et al. apparatus. However, Lo et al. does not specify a particular structure for the electrostatic chuck. Livesay discloses an electrostatic chuck comprising an electrode divided into a central portion (28) used to apply a low potential or ground potential to a wafer (11), see lines 3-12 in column 6, and a peripheral portion (26) to which a different potential is applied. When a wafer is placed on the chuck, the assembly forms a laminate of a substrate (wafer 11), an electrode (26) and an insulating material (dielectric sheet 25), wherein the wafer is applied with a voltage through a

predetermined resistor (the resistance inherent in the contact (28) and the wiring connecting the contact to the voltage source (32)) and a contact (28), said contact (28) having a shape such that its leading end comes in contact with a back surface of said object under testing. It would have been obvious to a person having ordinary skill in the art to use Livesay's electrostatic chuck as the unspecified electrostatic chuck suggested by Lo et al. The use of some of the peripheral portion (26) of the electrode instead of Livesay's connecting arm underneath and isolated from the peripheral portion to connect the central portion (28) of the electrode to the voltage source would have been an obvious substitution of equivalent parts. In the amendment filed on October 12, 2004, Applicant attempted to distinguish over the prior art by adding the limitation that the apparatus comprises "a controller for controlling said voltage source to cause a voltage to be applied to said object to be gradually deepened to reach to a predetermined value during a predetermined period so that an insulating layer is prevented from breakdown." Applicant has presented no evidence that the Lo et al. apparatus changes the voltage so quickly that the objects under test are harmed because Lo et al. does not specify a rate at which to change the voltage. The new limitation of a controller that gradually deepens the voltage applied to the object therefore is a vague limitation that attempts to solve a problem that only exists if a person tried to operate the Yamazaki et al./Lo et al./Tabrizi et al./Davis et al. apparatus in a way not taught by any of the prior art. Such a solution to a nonexistent problem cannot patentably distinguish an invention.

Claims 80, 82, 85, and 95 are allowed.

Claim 81 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: As was explained in the previous Office action with respect to Claim 18, the prior art does not teach to provide a sheet beam testing apparatus with an electrostatic objective lens comprising two electrodes and a control mechanism for changing the voltage on one electrode to largely (i.e. coarsely or roughly) change the focal distance of the lens and to the other electrode to change the focal distance of the lens in a short time (i.e. to finely control the focus of the lens) as is now claimed in Claim 85; with respect to Claims 82 and 95, Applicant's argument that the prior art does not disclose an EXB separator that uses a magnetic field that deflects a charged particle twice as much as does the electric field or that deflects one of the primary beam or the secondary beam about 3 times as much as the other beam is convincing; and with respect to Claim 80, the prior art does not teach to offset the holes in the partition wall from the irradiating axes of the corresponding beam sources.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack I. Berman whose telephone number is (571) 272-2468. The examiner can normally be reached on M-F (8:30-6:00) with every second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jack I. Berman

Jack I. Berman
Primary Examiner
Art Unit 2881

jb
12/6/04